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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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21839	7590	03/01/2004	EXAMINER	
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DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/619,535

Applicant(s)

GROH ET AL.

Examiner

Lynda M Salvatore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-18, 40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) 19-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-15, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) 16, 40 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 01/26/04, have been fully considered and entered. Applicant's arguments have been found persuasive to overcome the rejection of claim 10 rejected under 35 U.S.C. 112, second paragraph. As such, this rejection is hereby withdrawn. Applicant's arguments regarding the rejections of claims 1-10, 12-18, 40 and 41 as set forth in sections 5-10 of the Final Office Action have been fully considered and are persuasive. Specifically, the prior art of Baravian et al., US 5,616,395 fails to teach degree of needling penetration as recited in claim 1, and as such does not anticipate as indicated in the Final Office Action. Therefore, the final rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made over Baravian et al., US 5,616,395 in view of Hiers, RE 33,023.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 3-9, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Hiers, RE 33,023.

The patent issued to Baravian et al., teaches a two-layer textile reinforcement comprising a thermostabilized consolidated non-woven first base layer needled to a second mineral fiber layer, which may in the form of a grid, scrim or cloth of continuous or discontinuous mineral filaments (Abstract). Baravian et al., teaches the application of heat to consolidate the non-woven and preferably comprises a sheet of continuous

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filaments of a thermoplastic synthetic polymer, having no binder fibers, such as a polyester, co-polyester, or polyamide (Column 2, 63-65 and Column 3, 45-55). Baravian et al., clearly teaches that second mineral layer preferably takes the form of a scrim of mineral fibers formed by wet or dry non-woven processes, more particularly discontinuous glass fibers with chemical or thermal bonding (Column 3, line 65-Column 3, line 5). In this case, chemical bonding is interpreted as any type of resinous based binder. The Examiner acknowledges that Baravian et al., does not explicitly teach the orientation of the layers (i.e., glass layer positioned below the synthetic layer), however, it well known in the art that glass fibers are not needed due to the fact that they are too fragile and would break. In further support of this assertion, Hiers also teaches disposing the glass layer between two synthetic non-woven layers (Figures 1 and 2, Column 3, 55-68 and Column 6, 7-69). Thus, it is obvious that the synthetic layer is the upper layer during needling. With regard to the heat shrunken limitation, Baravian et al., teaches a non-woven sheet of polyolefin filaments, which is calendared under heat and pressure to achieve the desired shrinkage and density (Column 4, 45-57). Presently claim 1 does limit when the heat shrinking occurs, but only that it takes place. Without such limitations, it is the position of the Examiner that calendaring a synthetic non-woven sheet under heat and pressure would effectively heat shrink the fibers comprising the non-woven layer.

Though, Baravian et al., does not explicitly teach specific needling embodiments or the degree of needling, it would be improper to ignore the disclosure directed to needle bonding regardless if the method it is not exemplified. The fact remains that Baravian et al., teaches needle bonding as a means to join the two layers together. With regard to

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limitation of "needling such that a portion of the fibers of the synthetic non-woven layer passes through the non-woven layer containing the glass fibers and penetrates a side of the layer of glass fibers facing away from the layer of synthetic fibers", it is the position of the Examiner that it is widely known in the art to vary the depth of penetration as function of mechanical strength and composite integrity. For Example, the patent issued to Hiers teaches needling a glass fiber batt and an organic fiber batt together to form a composite such that resulting layers are substantially non-detachable from each other and from an integral composite fabric (Column 4, 39-45). The Examiner would also like to call attention to figure 2 of the Hiers patent, which clearly illustrates needle penetration through all of the layers such that the layers are bound together at the respective inner surfaces (Figure 2, Column 5, 20-35).

Therefore, motivated by the desire to form a composite having sufficient mechanical strength and integrity, it would have been obvious to one having ordinary skill in the art at the time the invention was made to needle the layers in the invention of Baravian et al., such that that resulting layers are substantially non-detachable from each other and form an integral composite fabric as taught by Hiers.

With regard to claims 3,7, and 8, Hiers teaches a three layer structure comprising a glass batt disposed between two synthetic organic textile layers (Figure 2, Column 6, 5-17 and 60-69). Heirs specifically teaches this three layer arrangement to avoid the health risks associated with glass fiber breakage during the needling process (Column 3, 32-36, 55-58, and Column 45-28).

Therefore, motivated by the desire to prevent glass fiber breakage during needling it would have been obvious to one having ordinary skill in the art at the time the

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invention was made to provide an additional synthetic non-woven layer to the composite of Baravian et al., to form a three-layer structure as taught by Hiers.

With regard to claims 7 and 8, Hiers teaches that the weight ratios of organic fibers to glass fibers may vary from 1:10 to 10:1, but fails to explicitly teach the weight ratios of each synthetic organic textile layer relative to each other, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the relative ratios of the two synthetic organic textile layers as a function of desired end use, strength, durability, composite integrity and balance of properties. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233

With regard to claims 14 and 15 it is the position of the Examiner that the needling machine and needle draft constitute method limitations not shown to materially effect the final product structure. However, Hiers does teach aggressive and less aggressive needling as a function of the number of needles per square inch per stroke and/or barb configuration. For Example, the greater number of needles per inch per stroke or the, less fiber mobility and, hence is more aggressive. Conversely, the fewer number of needles per inch per stroke results in greater fiber mobility, and is thus considered less aggressive. Hiers teaches adjusting the number of needles per inch per stroke as a function of desired end use. Therefore, regardless of the preferred number of needles stroke per inch per stroke, Hiers evidences that varying the number of needles per inch per stroke is known in the art (Column 5-47). To that end, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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optimize the number of needles per inch per stroke as function of desired end use. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233

With regard to claim 17, Hiers teaches using E-glass fibers (Column 7, 5-10). It is commonly known in the art that E-glass provides good tensile, compressive strength, stiffness, and electrical properties.

Therefore, motivated by above aforementioned properties it would have been obvious to one having ordinary skill in the art to form the glass layer of Baravian et al., using the E-glass fibers taught by Hiers.

Therefore, motivated to provide a synthetic non-woven having good heat shrinking properties, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the non-woven layer of Baravian et al., using the polyester fibers taught by Hiers.

4. Claims 2,12 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Baravian et al., US 5,616,395 in view of Hiers, RE 33,023 applied to claim 1 above, and further in view of Heidel et al., US 5,171,629.

The combination of Baravian et al., and Hiers fails to teach what binders are suitable for chemically binding the glass non-woven, however, the patent issued to Heidel et al. discloses a glass fiber mat and synthetic fiber mat that are needled together. Heidel et al. teaches pre-consolidating the glass fiber mat with polymer binders or melamine resins (Column 2, lines 14-17). Therefore, motivated to provide a stabilized mineral fiber non-woven layer, it would have been obvious to one having ordinary skill in the art at the

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time the invention was made to use the polymer binders or melamine resins taught by Heidel et al., to consolidate the glass fiber layer of Baravian et al.

With respect to claims 12 and 13, Heidel et al., lacks an explicit teaching as to the amount of binder, but does state that low amounts are suitable due to the bonding strength melamine resins. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of resin used to pre-consolidate the glass fiber mat. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value of a results effective variable involves only routine skill in the art. *In re Boesch* 272, 205 USPQ 215 (CCPA 1980)

Allowable Subject Matter

5. Claims 10,16, 40 and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With regard to claim 10, the prior art fails to teach the negative limitation of not consolidating the non-woven prior to needling. Specifically, the Examiner interprets the limitations of not consolidating the non-woven prior to needling to mean, that the synthetic filaments are heat shrunk prior to the formation of a non-woven and no additional chemical or mechanical consolidation takes place prior to needling. With regard to claims 16, 40, and 41, the prior art of record fails to teach the addition of reinforcement materials. An updated art search did not produce any new substantial art for which to base a rejection and presently there is no motivation to combine references to form an obvious type rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynda M Salvatore whose telephone number is 571-272-1482. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1482. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 12, 2004

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